CLAIM AMENDMENTS

Please amend Claims 68, 69, 71, 73, and add new Claims 75-82, as follows:

- 1. 67. (Cancelled)
- crystal growth apparatus comprising a crucible for holding a crystal material; <u>and</u> a heating means, which is capable of forming at a periphery of the crucible a temperature gradient within a temperature range including a melting point of the crystal material, a supporting means for supporting a center bottom of the crucible, a cooling means provided at the supporting means, and a plurality of temperature detectors provided at the bottom of the crucible for detecting a temperature distribution across a first plane at the bottom of the crucible, the process comprising the steps of:

providing a plurality of temperature detectors at the bottom of the crucible;

<u>detecting a temperature distribution across said first plane the</u>

<u>bottom</u> of the crucible <u>by using the plurality of temperature detectors</u>; and

controlling the heating means and the cooling means such that in the detected a temperature distribution across said first plane of the crucible, a temperature almost at a center portion of said first plane the bottom of the crucible is minimized smaller than a temperature at a periphery portion of the bottom of the crucible.

- 69. (Currently Amended) The process according to claims 68, 71, 72, 73, or 74, in which the crystal growth apparatus also includes a cooling means, wherein said process further comprises a step of controlling the cooling means, and wherein said step of controlling the cooling means is effected by adjusting a flow rate of cooling medium flowed into the cooling means.
- 70. (Previously Presented) The process according to claims 71, 72, 73, or 74, wherein the temperature detecting means includes a plurality of thermocouples and said step of detecting the temperature distribution is effected by said thermocouples.
- 71. (Currently Amended) The process according to claim 68, A process for crystal gr A process for crystal growth by using a crystal growth apparatus comprising a crucible for holding a crystal material, a heating means which is capable of forming at a periphery of the crucible a temperature gradient within a temperature range including a melting point of the crystal material, a supporting means for supporting a center bottom of the crucible, a cooling means provided at the supporting means, and a temperature detecting means provided at the bottom of the crucible for detecting a temperature distribution across a first plane at the bottom of the crucible, the process comprising the steps of:

detecting the temperature distribution across said first plane of the crucible; and

controlling the heating means and the cooling means such that in the detected temperature distribution across said first plane of the crucible, a temperature almost at a center portion of said first plane of the crucible is minimized,

wherein the interior of the crucible is divided into plural layers by a plurality of disks formed across respective cross-sections of the crucible, wherein the temperature detecting means is further provided in the disks, and wherein said process further comprises the step of detecting a temperature distribution across said respective disks.

- 72. (Previously Presented) The process according to claim 71, wherein each disk has an opening at almost its center.
- growth apparatus comprising a crucible for holding a crystal material, the crucible being divided into plural layers by a plurality of disks formed across respective cross-sections of the crucible, the crystal growth apparatus further comprising a heating means, which is capable of forming at a periphery of the crucible a temperature gradient within a temperature range including a melting point of the crystal material, a supporting means for supporting a center bottom of the crucible, a cooling means provided at the supporting means, and a temperature detecting means provided in at least one of the disks for detecting a temperature distribution across that disk, the process comprising the steps of:

providing a temperature detecting means in at least one of the disks;

detecting the temperature distribution across said at least one of said

disks by using said temperature detecting means; and

controlling the heating means and the cooling means such that in the detected temperature distribution across said at least one disk, a temperature almost at a

center portion thereof is minimized of cross-sections of the crucible is smaller than a termperature at a periphery portion of the respective cross-sections.

- 74. (Previously Presented) The process according to claim 73, wherein each disk has an opening at almost its center.
- 75. (New) The process according to claim 68 or claim 73, wherein the crystal growth apparatus comprises a cooling means, and a step of controlling the cooling means is effected by adjusting a flow rate of a cooling medium flowed into the cooling means.
- 76. (New) The process according to claim 68 wherein a temperature at a center portion of the bottom of the crucible is minimized.
- 77. (New) The process according to claim 73, wherein a temperature at a center portion of the cross-sections of the crucible is minimized.
- 78. (New) A crystal growth apparatus comprising a crucible for holding a crystal material, a heating means, a plurality of temperature detectors provided at the bottom of the crucible for detecting a temperature distribution, and a control means for controlling the heating means such that a temperature at a center portion of the bottom of the crucible is smaller than a temperature at a periphery portion of the bottom of the crucible.

- 79. (New) A crystal growth apparatus comprising a crucible for holding a crystal material, the crucible being divided into plural layers by a plurality of disks formed across respective cross-sections of the crucible, the crystal growth apparatus further comprising a heating means; a temperature detecting means provided in at least one of the disks for detecting a temperature distribution across that disk; and a control means for controlling the heating means such that in the detected temperature distribution across at least one disk, a temperature at a center portion of cross-sections of the crucible is smaller than a temperature at a periphery portion of cross-sections of the crucible.
- 80. (New) The crystal growth apparatus according to claim 79 or claim 79, wherein the crystal growth apparatus comprises a cooling means, and the control means adjusts a flow rate of cooling medium flowed into the cooling means.
- 81. (New) The crystal growth apparatus according to claim 78, wherein a temperature at a center portion of the bottom of the crucible is minimized.
- 82. (New) The crystal growth apparatus according to clam 79, wherein a temperature at a center portion of cross-sections of the crucible is minimized.